NOTES ON SOME

DISEASES OF CHILDREN

Bas-Relief in which is represented Women and Children in the presence of Asklepios with his symbol, the Serpent

BURROUGHS WELLCOME & CO.

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Radiograms of Wrists in Rickets

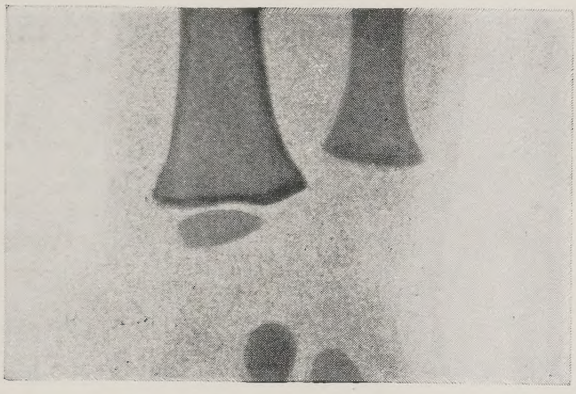


FIG. 1.—Radiogram of normal wrist.

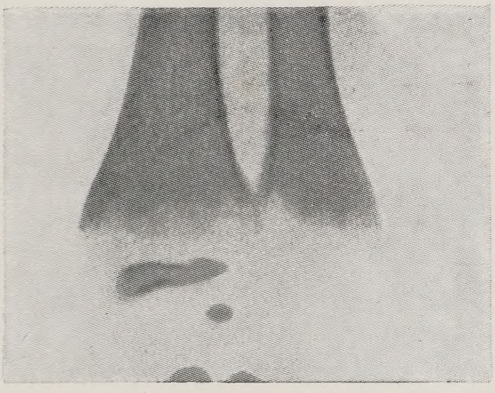


FIG. 2.—Radiogram of wrist in rickets, showing lipping and irregularity of the epiphyseal line.

FIG. 3.—Radiogram of wrist after administration of cod liver oil to a case of rickets, showing evidence of fresh calcification at the epiphyseal line.

Feeding test of the Vitamin D content of 'Kepler' Cod Liver Oil

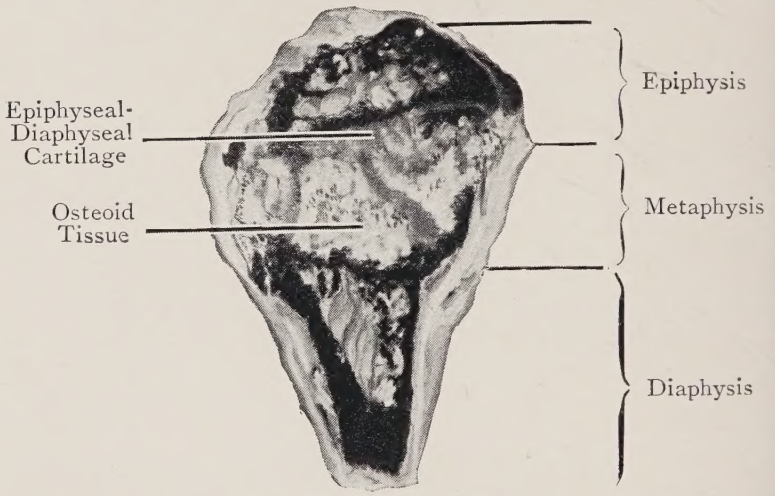


FIG. 4.—Femur of rat fed on rickets-producing diet consisting of patent flour and salts (Sherman and Pappenheimer 84). The cut face of the bone has been stained with silver nitrate. The black deposits indicate areas of calcification. There is no calcification of the provisional zone of cartilage and the preosseous tissue (osteoid) is produced in abnormal amount and remains uncalcified. A wide rachitic metaphysis absent from normal bone is formed, composed of blood vessels, connective tissue, osteoid tissue and isolated pockets of degenerated cartilage cells.

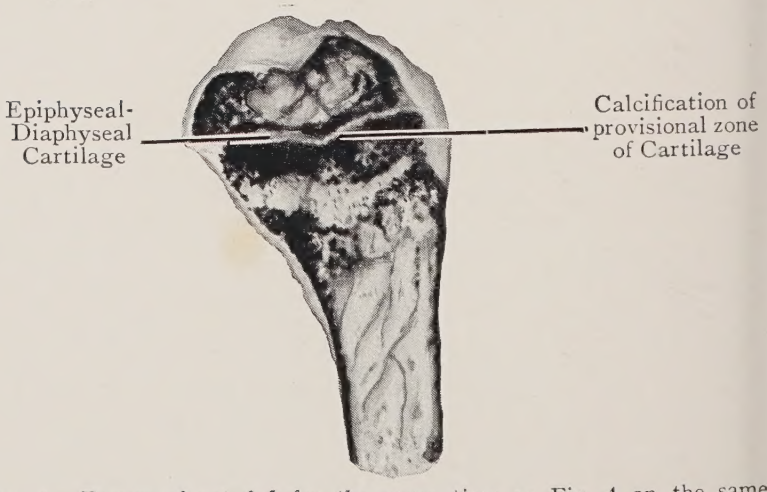


FIG. 5.—Femur of rat fed for the same time as Fig. 4 on the same rickets-producing diet, but with *the addition during the last three weeks of* 0·01 *c.c. of 'Kepler' Cod Liver Oil each day.* Healing is commencing and normal calcification of the provisional zone of cartilage is taking place.

NOTES ON SOME

DISEASES OF CHILDREN

THE PROPHYLAXIS AND TREATMENT OF RICKETS

RICKETS is caused by a derangement of the calcium and phosphorus balance in the growing animal. This leads to a partial or a total suspension of the ossification of the growing bones. The histology of the bone lesion is illustrated in Fig. 1 and Fig. 2. The factor which is concerned with this balance of calcium and phosphorus is Vitamin D. Low calcium and high phosphorus or low phosphorus and high calcium diets readily produce rickets unless the supply of Vitamin D is sufficient.

Rickets—cause

Normally the blood of the infant or young child contains 10 mg. of calcium and 5 to 6 mg. of phosphorus in each 100 c.c. An indication of the process of deposition of tertiary calcium phosphate in the growing bone, is given by the product of the concentration of phosphorus and calcium in the blood expressed as

Biochemical

milligrammes per cent. This is between 50 and 60 in the normal child (calcium 10, phosphorus 5 to 6). When the product is below 30, rickets is usually present; when the product is above 40, either rickets has not been present or healing is taking place. In uncomplicated rickets, low blood calcium is rarely found, but the blood phosphorus is low. Low blood calcium is, however, found in spasmophilia (tetany and laryngismus stridulus) and in cœliac and renal rickets.

A diet with a sufficient content of Vitamin D is able to regularise the balance of calcium and phosphorus, and calcification proceeds normally. If Vitamin D is deficient in the diet the clinical condition of rickets arises. When cod liver oil or irradiated ergosterol is administered to such a case, the missing Vitamin D is supplied and ossification recommences with the rapid cure of the rickety condition. Very interesting light was thrown on Vitamin D by the investigations which led to the production of irradiated ergosterol. In 1925, Rosenheim and Webster published the results of work which showed that cholesterol, having the characteristics then known as "chemically pure," was rendered anti-rachitic by exposure to ultra-violet light. In 1926, the same observers demonstrated that cholesterol, when purified still further by a chemical method, lost the property of becoming anti-rachitic by irradiation with ultra-violet light. It was also shown that another sterol—ergosterol—became intensely anti-rachitic

Vitamin D

Pro-vitamin D

when irradiated. Further investigation, carried out partly in collaboration with Prof. Windaus (Göttingen), provided an explanation of this phenomenon. It became clear that the Vitamin D precursor is not cholesterol itself, but ergosterol, which is associated with cholesterol as obtained from natural sources.

Irradiated Ergosterol

Ergosterol was originally isolated by Tanret from ergot and named accordingly. Sterols, identical with, or of very similar constitution to ergosterol, have been obtained from a wide range of the lower plants. The irradiation of ergosterol results in a substance possessing anti-rachitic activity of great intensity. It has been shown that human rickets can very readily be cured by a daily dose of one or two milligrammes of irradiated ergosterol.

'TABLOID' IRRADIATED ERGOSTEROL is available in two strengths, and the anti-rachitic (Vitamin D) activity of the irradiated ergosterol is controlled by stringent animal feeding tests.

The treatment of an established case of rickets lies primarily in a reorganisation of the diet with the object of providing a full supply of Vitamin D. For this purpose, cod liver oil is given in daily doses. This may be reinforced by 'TABLOID' IRRADIATED ERGOSTEROL, 0·15 mgm. (0·00015 gm.) strength. In serious and intractable cases, the 1 mgm. (0·001 gm.) strength is given two or

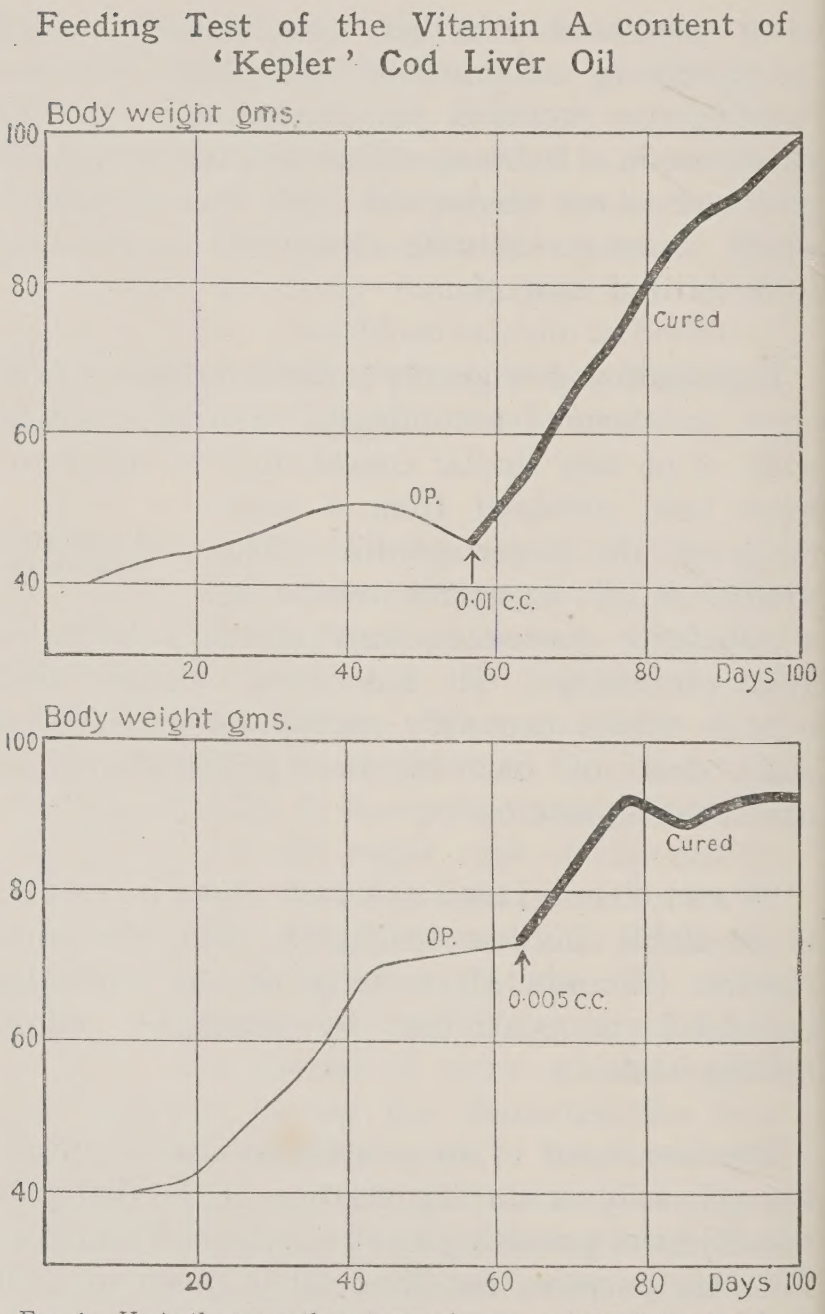


FIG. 6.—Up to the arrow the rats were kept on a diet deficient in Vitamin A, but containing Vitamin D in the form of irradiated ergosterol and Vitamin B in the form of yeast extract. At the arrow, were added to the diet 0·01 c.c. and 0·005 c.c., respectively, each day, of 'Kepler' Cod Liver Oil, with resulting increased growth. Each of these animals developed xerophthalmia at the points marked OP, which disappeared at the points marked *cured.*

three times a day. The main objective in the cure of rickets is to stop the process at the earliest possible moment. Each day of delay in resumption of ossification means still further permanent skeletal damage. The great value of 'TABLOID' IRRADIATED ERGOSTEROL is, therefore, readily appreciated, providing as it does an easy means of supplementing cod liver oil with Vitamin D in definite massive doses.

Treatment of rickets

But there is one point which may be in danger of being insufficiently emphasised. When the diet of an infant is deficient in Vitamin D, it is likely to be, or almost certainly is, also deficient in Vitamin A. It is hardly possible, in practice, for the diet of a human infant to be deficient in Vitamin D, without at the same time, being deficient in Vitamin A. Vitamin A is of very great importance to the growing animal, although the results of its absence in the diet are not so dramatically obvious as are the results of the deficiency of Vitamin D. Moreover, deficiency of Vitamin A, by causing cessation of growth, may minimise the signs underlying intense rickets. Cod liver oil should always be administered to a case of rickets in addition to irradiated ergosterol. Cod liver oil is the only readily available supply of Vitamin A which the clinician possesses. It is of importance, of course, that the particular cod liver oil administered should have been tested in the laboratory by feeding experiments on animals and shown to contain a rich content

Deficiency of Vitamin A

of Vitamin A. 'KEPLER' COD LIVER OIL fulfils this condition (Fig. 3). Cod Liver Oil should be given in every case of rickets, or suspected rickets, for the sake of its Vitamin A content. The combination of 'KEPLER' COD LIVER OIL and 'TABLOID' IRRADIATED ERGOSTEROL provides a means of cure in cases of rickets, more sure and in less time than has ever been previously available to the physician. Growth recommences and normal ossification becomes evident in radiograms in two or three weeks.

Cod Liver Oil in every case

Vitamin C deficiency may be so severe as to cause the complication of scurvy. But, in all cases, whether or not definite symptoms of scurvy are present, orange juice should be given in doses of 15 minims upwards, according to age, four times a day.

There is little doubt that for every definite case of rickets there is a regrettably large number of borderline cases in which hypovitaminosis is the cause of indefinite symptoms of chronic ill-health. Such infants progress slowly and erratically, are stunted, backward and irritable. Gastro-intestinal disorders are common and increase the essential deficiency of vitamins. The resistance to infection is low, and bronchial and pulmonary complaints are common. The improvement in these infants, under a full vitamin diet, is sometimes dramatic. 'KEPLER' COD LIVER OIL should be given as in established cases of rickets.

Borderline cases

It seems certain, from both human experience and animal experiment, that the offspring of a mother, whose diet during gestation has been deficient in accessory food substance, may be, and often obviously are, predisposed to rickets and of low general vitality. Especially the teeth of such infants are of poor development. Children of identical dietary history after birth show, by the onset of rickets in some, that the diet of the mother during the pre-natal period was the determining factor in the development of the condition. Nothing is more important in ante-natal care than the provision of a complete diet for the mother. 'TABLOID' IRRADIATED ERGOSTEROL places in the hands of the physicians a ready means of providing the pregnant woman with a rich supply of Vitamin D.

Ante-natal period

Too much emphasis cannot be placed on the fact that breast-feeding is the best both for the child and the mother. There is no real substitute for breast milk. Substitute-feeding is always inferior feeding. It is rare for any real contra-indication to breast-feeding to exist, *e.g.*, tuberculosis, serious renal and cardiac disease, insanity, or some grave chronic condition. Vague ill-health or the "delicate constitution" are inadequate reasons for the non-adoption of breast-feeding or for weaning.

Breast-feeding

A most important characteristic of milk is its vitamin content. The milk is the infant's sole

source of vitamins, and the demonstration of the need for an adequate supply of these accessory substances to the growth and health, both present and remote, of the infant is one of the outstanding facts of modern discovery in the science of nutrition. Children deprived of an adequate supply of vitamins are at a disadvantage in physical development and powers of resistance to disease, apart from definite clear-cut cases of rickets. The results of chronic vitamin under-feeding, both before and after weaning, are evident for the rest of the infant's life.

Vitamin content of milk

The vitamin content of the breast-milk depends entirely on the vitamin content of the mother's diet during lactation. The vitamins present in the milk vary quantitatively with the amounts in the diet of the mother. During lactation, the same steps should be taken to provide an adequate and vitamin rich diet as during gestation. The problem is simplified and the supply of vitamins assured by the administration of cod liver oil to the mother as a regular daily dietary adjunct. 'KEPLER' COD LIVER OIL WITH MALT EXTRACT overcomes all difficulties of administration as well as providing Vitamin B in the malt extract in addition to the Vitamins A and D of the cod liver oil. 'KEPLER' COD LIVER OIL WITH MALT EXTRACT provides the physician with a perfect means of safeguarding the vitamin supply to the

An ideal dietary adjunct

infant. The anti-scorbutic Vitamin C is provided by the daily addition of fruit to the diet of the mother. The supply of Vitamin D to the infant is so important that it may be thought advisable, in many cases, to reinforce the Vitamin D content of the cod liver oil by the administration to the mother of 'TABLOID' IRRADIATED ERGOSTEROL, one milligramme daily.

It is perhaps not too much to say that the measures outlined above and the daily administration of Vitamin D in the form of cod liver oil or irradiated ergosterol to the mother during gestation and lactation, would be a perfect prophylaxis against rickets. Further, too much emphasis cannot be placed on the fact that when rickets becomes manifest in a child, that, in addition to a deficiency of Vitamin D, there is also a general hypovitaminosis. This necessitates the provision of Vitamins A and B. This is effectively accomplished by administering a preparation such as 'KEPLER' COD LIVER OIL WITH MALT EXTRACT whose vitamin content is rigidly controlled by laboratory feeding experiments.

Effective measures

'KEPLER' COD LIVER OIL WITH MALT EXTRACT has a long history of therapeutic excellence. Its origin and preparation are the scrupulous care of the technical organisation of Burroughs Wellcome & Co. It is such control

that provides the physician with a safeguard which is readily appreciated.

'Kepler' Cod Liver Oil has been tested for its vitamin content since 1923. All 'Kepler' Cod Liver Oil is tested by chemical and biological methods. In Vitamin A content it conforms to a standard of 10 blue units, determined chemically by the antimony chloride test and confirmed biologically.

Preparations

TRADE MARK 'KEPLER' COD LIVER OIL [SEE LIST B. W. & Co.]

Bottles of 8 oz. and 16 oz.

TRADE MARK 'KEPLER' COD LIVER OIL WITH MALT EXTRACT [SEE LIST B. W. & Co.]

Bottles of two sizes

TRADE MARK 'TABLOID' BRAND IRRADIATED ERGOSTEROL, 0·15 milligramme (0·00015 gm.)*; and 1 milligramme (0·001 gm.)† [SEE LIST B. W. & Co.]

DIRECTION.—The Vitamin D content of the 0·15 milligramme strength is equivalent to that of one tablespoonful of cod liver oil, and is used in supplementing a diet which already contains Vitamin D, *e.g.*, 'Kepler' Cod Liver Oil with Malt Extract; the 1 milligramme strength is convenient for the administration of two or more milligrammes daily.

For administration the products may be powdered in a little water or milk or added to the child's food. Older children may swallow the products with a draught of water.

* *Tubes of 25 and bottles of 100*
† *Bottles of 25 and 100*

Dental Caries

The causation and predisposing factors of dental caries have for long been subject to considerable discussion and investigation. Various articles of diet have been condemned as having some causal relation to dental decay. The work of Mellanby, on the dietetic factors which control the structure of teeth in puppies, showed that cereals, and especially oatmeal, inhibited perfect calcification in teeth. Later work showed that this factor also influenced initiation of caries in the teeth of children.

Influence of diet

The discovery and isolation of Vitamin D and the demonstration of its connection with the calcification of growing bone led to experiments designed to investigate the connection which Vitamin D might have with calcification of teeth. These experiments showed that food substances which contain the anti-rachitic Vitamin D, greatly stimulated the calcification of teeth and warded off caries even when the animals were on a caries-producing diet of white cereals. The isolation of Vitamin D in the form of irradiated ergosterol made possible more detailed experiments with regard to the causation of dental caries.

Investigations conducted on groups of young children have shown that when the diet was deficient in Vitamin D dental caries was initiated and became a progressive condition. On the other hand, a group of children to whom Vitamin D

was supplied in the diet did not develop caries. Moreover, in a group of children in whom caries had already shown itself, the administration of Vitamin D in the form of irradiated ergosterol over a period of 6—9 months caused the disappearance of the caries and the hardening of the teeth in which the caries had started.

Control of caries by Vitamin D

Vitamin D seems undoubtedly to be responsible for promoting normal calcification, whether of the developing teeth or of the secondary dentine in erupted teeth, and, therefore, plays an important role in the arrest of dental caries. It seems to be clear, from the results of experiments, that the addition of Vitamin D to the diet has a pronounced effect in—

(1) preventing initiation of new carious foci,
(2) limiting the spread of caries, and,
(3) arresting the carious process in many cases.

That other factors may claim a part in the initiation of caries is likely, but it seems certain that the most important, if not the chief, factor, is the presence of Vitamin D in the diet.

'TABLOID' IRRADIATED ERGOSTEROL provides the physician with a means of administering Vitamin D in convenient form over the long period which may be necessary for the prophylaxis or treatment of caries. The irradiated ergosterol used in the preparation of 'TABLOID' IRRADIATED ERGOSTEROL undergoes stringent animal-feeding tests which control its antirachitic activity.

Disorders of the Heart

Acute Conditions

Rheumatic infection is the chief cause of acute carditis in childhood. Other forms of illness may weaken or affect the heart, but both in its acute form and in its remote effects there is nothing comparable with acute rheumatic carditis. The condition is a pancarditis in which valvular, conducting and contractile tissues are all involved, and in which pericarditis is common. Other signs of rheumatic infection, such as fever, sweating, pains about joints or muscles, will usually be present, and the type of carditis may vary from a mild to a very severe attack. A mild attack, especially a first attack, may subside without resulting in any permanent damage to the heart.

The most important effect in an acute rheumatic attack is that on the myocardium, and the ultimate heart failure is the result of this myocarditis. The possibility of carditis supervening must always be kept in mind in all cases of an acute attack of rheumatic infection.

Treatment by sodium salicylate, it is stated, reduces the risk of carditis, or the degree of carditis, as well as relieving arthritic and fascial pains. Upon the best method of using the drug there is divergence of opinion. Some would push the drug and combine it with double the dose of sodium bicarbonate. Others give sodium salicylate in 10 grain doses every two or three hours for 4 to 6 doses and then the intervals are lengthened.

It is important that the sodium salicylate should be a carefully prepared pharmaceutical product. 'Wellcome' brand Sodium Salicylate is *physiologically pure*, and is tolerated by children

in large doses. 'TABLOID' BRAND SODIUM SALICYLATE AND POTASSIUM BICARBONATE will be found an ideal method of medication in rheumatic infection. 'TABLOID' BRAND SALICIN may be given instead of the sodium salt, and this may be found desirable in certain cases in which children do not easily tolerate sodium salicylate. 'TABLOID' BRAND SALICIN has been found to be a medicament of outstanding usefulness in the treatment of acute rheumatic infection in children, and may be administered in large doses.

The degree of fever rarely calls for any special measure, and a temperature of 102° F. is more satisfactory than fever only slightly above normal associated with severe toxæmia. The heart should be given as much rest as possible by securing physical rest and sleep and removing all sources of nervous disturbance. Digestive disorder, constipation and especially pain may be a cause of cardiac unrest. 'TABLOID' CALOMEL is indicated at the onset of the attack followed by a saline such as 'TABLOID' MAGNESIUM SULPHATE COMPOUND, Effervescent. Later, one of the 'TABLOID' RHUBARB preparations may be found most useful. Special attention is directed to the wide range of 'TABLOID' preparations of rhubarb. 'TABLOID' RHUBARB, SODA and MAGNESIA has been found an especially valuable preparation in regulating gastro-intestinal function. Various medicaments may be freely required in securing rest. 'TABLOID' POTASSIUM BROMIDE and 'TABLOID' CHLORAL HYDRATE are well tolerated by the youngest patients. 'TABLOID' BELLADONNA TINCTURE and 'TABLOID' CAMPHOR COMPOUND TINCTURE will be found useful and valuable medicaments in many cases.

Causes of cardiac unrest

'TABLOID' DOVER POWDER will also be found of great value as a sedative.

Chronic Conditions

Chronic heart disease in childhood is the result of rheumatic infection. In some cases there is a history of definite rheumatic fever with active cardiac lesions, while in others there may have been no acute illness, but there is an indefinite history of growing pains, sore throat or chorea. In many cases the cardiac condition is the only evidence of previous rheumatic infection.

Rheumatic infection

Although the heart may be involved in other acute infections besides rheumatic fever, yet they do not leave permanent lesions or lead to chronic heart disease. The heart may be weakened by acute infection and this weakness may last for some time, but there is always a complete return to the former healthy condition. If the heart does not return to normal and there is a progression into a state of chronic heart disease, it may be taken that rheumatic infection has been present. Although the onset of chronic heart disease may often be traced back to an attack of scarlet fever or diphtheria some years previously, it is not these acute illnesses which are the cause of the permanent cardiac damage, but, in such cases, there has been a super-imposed or a previous rheumatic infection.

Although the lesions cannot be altered, yet the disturbances of cardiac action which accompany the lesions can sometimes be beneficially affected with relief of the cardiac distress. Heart failure in childhood is usually of the congestive type. These cases have usually a high pulse-rate, due to disturbance of the sino-auricular node. The rate in many cases is maintained at 120–130 per minute, and this rapidly leads to failure of the cardiac

muscle. In such cases digitalis is found to be of very great value. Although digitalis has little or no inhibitory effect on the initiation of impulses at the sino-auricular node in the adult, yet in childhood this effect is very evident. Digitalis consistently causes slowing of the heart in childhood by its action on vagal inhibition of impulses at the sino-auricular node. Under digitalis the heart-rate is reduced, with consequent recovery of the cardiac muscle. A dose of 15 minims of 'WELLCOME' BRAND DIGITALIS TINCTURE may be given to a child, three times a day. Slowing of the heart may be expected on the second or third day. After full therapeutic effect of the drug has been obtained, the dose is reduced to a maintenance dosage which is sufficient to control the cardiac action. In later treatment with older children, 'TABLOID' BRAND DIGITALIS LEAF will be found a most convenient method of administration.

SODIUM SALICYLATE

'WELLCOME' BRAND SODIUM SALICYLATE *(Physiologically Pure)* is specially prepared and tested at the Wellcome Chemical Works, Dartford, England, and it is claimed that patients who cannot tolerate even minimum doses of ordinary sodium salicylate will often take maximum doses of 'WELLCOME' BRAND SODIUM SALICYLATE over a prolonged period without inconvenience.

Reduced facsimile

Issued in Powder and in Flake form, in cartons of 1 lb., 4 lb., 7 lb., 500 gm. and 1 kilo.**

** Obtainable in the British Empire Overseas to special order only*

'WELLCOME' BRAND SODIUM SALICYLATE is used in the preparation of the 'Tabloid' products.

Preparations

TRADE MARK 'TABLOID' BRAND SODIUM SALICYLATE *(Physiologically Pure)*, gr. 3 [0·194 gm.]; gr. 5 [0·324 gm.]; 0·5 gramme*; and 1 gramme* [SEE LIST B. W. & Co.]

DIRECTION.—One, or more, of the gr. 3 or gr. 5 strength, one to four of the 0·5 gramme strength, or one to two of the 1 gramme strength, dissolved in a large wineglassful of water, twice or thrice daily, after food. The official maximum dose is thirty grains.

Gr. 3, gr. 5, and 0·5 gm., bottles of 25 and 100; 1 gm., bottles of 25

TRADE MARK 'TABLOID' BRAND SODIUM SALICYLATE *(Natural)*, gr. 3 [0·194 gm.]; and gr. 5 [0·324 gm.] [SEE LIST B. W. & Co.]

DIRECTION.—One, or more, dissolved in a large wineglassful of water, twice or thrice daily, after food. The maximum dose is thirty grains.

Each strength in bottles of 25

TRADE MARK 'TABLOID' BRAND SODIUM SALICYLATE *(Physiologically Pure)*, gr. 10 [0·648 gm.], Effervescent [SEE LIST B. W. & Co.]

DIRECTION.—One to three, or more, powdered, and dissolved in half-a-tumblerful of water, twice of thrice daily, after food.

Tubes of 25

TRADE MARK 'TABLOID' BRAND SODIUM SALICYLATE, gr. 5 [0·324 gm.]; and POTASSIUM BICARBONATE, gr. 5 [0·324 gm.] [SEE LIST B. W. & Co.]

DIRECTION.—One to six, dissolved in a large wineglassful of water, twice or thrice daily, after food.

Bottles of 25 and 100

SALICIN

'TABLOID' SALICIN is a medicament of outstanding usefulness in the treatment of acute rheumatic infection.

Preparations

TRADE MARK 'TABLOID' BRAND SALICIN, gr. 5 [0·324 gm.]; and 0·25 gramme* [SEE LIST B. W. & Co.]

DIRECTION.—One to four of the gr. 5 strength, or one to five of the 0·25 gramme strength, taken with a little water, twice or thrice daily, after food. The official maximum dose is twenty grains.

Each strength in bottles of 25 and 100

Reduced facsimile

* *Obtainable in the British Empire Overseas to special order only*

TRADE MARK 'WELLCOME' BRAND

TINCTURE OF DIGITALIS, B.P.

(Physiologically Standardised)

TRADE MARK 'TABLOID' BRAND DIGITALIS LEAF, B.P.

In order that the physician may be assured that when using 'WELLCOME' BRAND TINCTURE OF DIGITALIS he is administering a preparation of full and definite potency, each package bears an expiration date. This date is set well in advance of the time when appreciable deterioration could conceivably take place.

'WELLCOME' BRAND TINCTURE OF DIGITALIS is prepared from leaves grown on the Wellcome Materia Medica Farm.

'TABLOID' DIGITALIS LEAF is of the highest standard and presents all the glucosides of digitalis. It is hazardous to prescribe either digitalis leaf or tincture whose origin and standardisation are unknown.

Preparations

TRADE MARK 'WELLCOME' BRAND TINCTURE OF DIGITALIS, B.P. [SEE LIST B. W. & Co.]

Bottles of 4, 8 and 16 fluid ounces

TRADE MARK 'TABLOID' BRAND DIGITALIS LEAF, B.P., gr. ½ [0·032 gm.]; and gr. 1 [0·065 gm.] [SEE LIST B. W. & Co.]

DIRECTION.—One to two, of either strength as required. This product is *physiologically-standardised.*

Each strength in bottles of 25 and 100

TRADE MARK 'TABLOID' BRAND DIGITALIS TINCTURE, min. 5 [0·296 c.c.]; and 0·1 gramme* [1 in 10] [SEE LIST B. W. & Co.]

DIRECTION.—One to three of the five minim or of the 0·1 gramme strength, thrice daily. This product is prepared from *physiologically-standardised* Digitalis Tincture.

Each strength in bottles of 100

* *Obtainable in the British Empire Overseas to special order only*

APERIENTS AND MEDICAMENTS FOR THE TREATMENT OF GASTRO-INTESTINAL DISTURBANCES

IN the list which follows is described a wide range of 'TABLOID' medicaments for use in the treatment of diarrhœa, constipation and gastric disturbances. The facility and convenience of administration, together with accuracy of dosage, is readily appreciated. When the physician prescribes 'TABLOID' products, he may rely upon the patient obtaining a medicament of pharmaceutical excellence and therapeutic efficiency.

The doses given are those for adults, and need adjustment according to age for children.

Preparations

TRADE MARK 'TABLOID' BRAND RHUBARB, gr. 3 [0·194 gm.]; 0·25 gramme*; and 0·5 gramme* [SEE LIST B. W. & Co.]

DIRECTION.—One to four, or more (according to the action required), taken with water, after food. The official dose is three to ten grains for repeated administration, and fifteen to thirty grains for a single dose.

Each strength in bottles of 25 and 100

TRADE MARK 'TABLOID' BRAND RHUBARB COMPOUND PILL, B.P., gr. 4 [0·259 gm.] [SEE LIST B. W. & Co.]

(Plain or sugar-coated)

DIRECTION.—One to two, taken with a little water, after food, or at bedtime.

Bottles of 25 and 100

TRADE MARK 'TABLOID' BRAND GREGORY POWDER (Rhubarb Compound Powder), gr. 5 [0·324 gm.] [SEE LIST B. W. & Co.]

(Plain or sugar-coated)

DIRECTION.—One to four, or more. The official dose is ten to sixty grains; the smaller dose may be taken regularly before or after meals.

Bottles of 25 and 100

---

* *Obtainable in the British Empire Overseas to special order only*

TRADE MARK ‘TABLOID’ BRAND RHUBARB AND SODA [SEE LIST B. W. & Co.]

℞ Pulv. Rhei, gr. 3 [0·194 gm.]
Sodii Bicarbonatis, gr. 1-1/2 [0·097 gm.]
Pulv. Zingiberis, gr. 1/2 [0·032 gm.]

(Plain or sugar-coated)

DIRECTION.—One to five, taken with a little water, before or after meals.

Bottles of 25 and 100

TRADE MARK ‘TABLOID’ BRAND RHUBARB AND SODA, No. 2* [SEE LIST B. W. & Co.]

℞ Pulv. Rhei, 0·2 gramme
Sodii Bicarbonatis, 0·1 gramme
Pulv. Zingiberis, 0·03 gramme

(Sugar-coated)

DIRECTION.—One to five, taken with a little water, before or after meals.

Bottles of 25 and 100

TRADE MARK ‘TABLOID’ BRAND RHUBARB, SODA AND MAGNESIA [SEE LIST B. W. & Co.]

℞ Pulv. Rhei, gr. 1 [0·065 gm.]
Sodii Bicarbonatis, gr. 1-1/2 [0·097 gm.]
Magnesii Carbonatis Pond., gr. 2 [0·13 gm.]
Pulv. Zingiberis, gr. 1/2 [0·032 gm.]

DIRECTION.—One to five, taken with a little water, before or after meals.

Bottles of 25 and 100

TRADE MARK ‘TABLOID’ BRAND RHUBARB AND GENTIAN COMPOUND (Stomachic Compound) [SEE LIST B. W. & Co.]

℞ Inf. Gentianæ Comp., fl. dr. 2 [7·1 c.c.]
Inf. Rhei, fl. dr. 1 [3·55 c.c.]
Sodii Bicarbonatis, gr. 5 [0·324 gm.]
Ol. Menthæ Piperitæ, min. 1/6 [0·01 c.c.]

DIRECTION.—One to four, taken with a little water, twice or thrice daily, between meals.

Bottles of 100

TRADE MARK ‘TABLOID’ BRAND LIQUORICE COMPOUND POWDER, gr. 30 [1·944 gm.]; and 2 grammes* [SEE LIST B. W. & Co.]

DIRECTION.—One to four, of either strength, taken with a little water.

Each strength in bottles of 25 and 100

TRADE MARK ‘TABLOID’ BRAND CALOMEL, gr. $\frac{1}{20}$ [0·0032 gm.]; gr. $\frac{1}{10}$ [0·0065 gm.]; gr. $\frac{1}{6}$ [0·011 gm.]; gr. $\frac{1}{4}$ [0·016 gm.]; gr. $\frac{1}{2}$ [0·032 gm.]; gr. 1 [0·065 gm.]; gr. 2 [0·13 gm.]; gr. 3 [0·194 gm.]; gr. 5 [0·324 gm.]; 0·005 gramme*; 0·01 gramme*; and 0·1 gramme* [SEE LIST B. W. & Co.]

DIRECTION.—The smaller doses as alteratives, the larger as purgatives. A small dose of Calomel, say gr. $\frac{1}{20}$, gr. $\frac{1}{10}$, or 0·005 gramme, repeated every half-hour or hour, is often found to have a more marked effect than one large dose. In certain conditions, especially following head injuries, doses of ten grains and more are given with great advantage. ‘Tabloid’ Calomel, gr. 5, is exceedingly useful in tropical countries, where large doses are more commonly used. It should be noted that children and infants tolerate comparatively large doses of Calomel.

Each strength in bottles of 100

** Obtainable in the British Empire Overseas to special order only*

TRADE MARK 'TABLOID' BRAND CALOMEL AND SODIUM BICARBONATE [SEE LIST B. W. & Co.]

℞ Hydrargyri Subchloridi, gr. 1/2 [0·032 gm.]
Sodii Bicarbonatis, gr. 2-1/2 [0·162 gm.]

DIRECTION.—One, or more, taken with water.

Bottles of 25 and 100

TRADE MARK 'TABLOID' BRAND CALOMEL AND SODIUM BICARBONATE [SEE LIST B. W. & Co.]

℞ Hydrargyri Subchloridi, gr. 1 [0·065 gm.]
Sodii Bicarbonatis, gr. 5 [0·324 gm.]

DIRECTION.—One, or more, taken with water.

Bottles of 25 and 100

TRADE MARK 'TABLOID' BRAND CALOMEL COMPOUND, gr. 4 [0·259 gm.] [Plummer Pill, B.P.] [SEE LIST B. W. & Co.]

DIRECTION.—One to two, at bedtime, as an alterative and mild aperient.

Bottles of 25 and 100

TRADE MARK 'TABLOID' BRAND BLUE PILL, gr. 4 [0·259 gm.] [SEE LIST B. W. & Co.]

DIRECTION.—One to two, after food, or (preferably) at bedtime.

Bottles of 25 and 100

TRADE MARK 'TABLOID' BRAND BLUE PILL AND RHUBARB COMPOUND [SEE LIST B. W. & Co.]

℞ Pil. Hydrargyri, P.B., gr. 2-1/2 [0·162 gm.]
Pil. Rhei Comp., P.B., gr. 2-1/2 [0·162 gm.]

DIRECTION.—One to two, at bedtime, as a laxative or mild purgative.

Bottles of 100

TRADE MARK 'TABLOID' BRAND BLUE PILL, COLOCYNTH AND HYOSCYAMUS [SEE LIST B. W. & Co.]

℞ Pil. Hydrargyri, P.B., gr. 2 [0·13 gm.]
Pil. Colocynthidis et Hyoscyami, P.B., gr. 4 [0·259 gm.]

DIRECTION.—One to two, at bedtime, as a purgative.

Bottles of 25 and 100

TRADE MARK 'TABLOID' BRAND BISMUTH AND SODA [SEE LIST B. W. & Co.]

℞ Bismuthi Subnitratis, gr. 2-1/2 [0·162 gm.]
Sodii Bicarbonatis, gr. 2-1/2 [0·162 gm.]

TRADE MARK 'TABLOID' BRAND BISMUTH AND SODA, No. 2* [SEE LIST B. W. & Co.]

℞ Bismuthi Subnitratis, 0·25 gramme
Sodii Bicarbonatis, 0·25 gramme

DIRECTION.—One to four, or more, of either strength, taken with a little water, twice or thrice daily, after food.

Each strength in bottles of 25 and 100

** Obtainable in the British Empire Overseas to special order only*

TRADE MARK ‘TABLOID’ BRAND BISMUTH, RHUBARB AND SODA
[SEE LIST B. W. & Co.]

℞	Bismuthi Subnitratis,	gr. 3	[0·194 gm.]
	Pulv. Rhei,	gr. 1	[0·065 gm.]
	Sodii Bicarbonatis,	gr. 2	[0·13 gm.]

DIRECTION.—One to four, taken with a little water, twice or thrice daily, after food.

Bottles of 25 *and* 100

TRADE MARK ‘TABLOID’ BRAND BISMUTH AND DOVER POWDER
[SEE LIST B. W. & Co.]

℞	Bismuthi Subnitratis,	gr. 2-1/2	[0·162 gm.]
	Pulv. Ipecacuanhæ Comp.,	gr. 2-1/2	[0·162 gm.]

DIRECTION.—One to six. In diarrhœa and dysentery, good results are often obtained by the frequent administration of small doses of these combined drugs.

Bottles of 100

TRADE MARK ‘TABLOID’ BRAND ASTRINGENT MIXTURE [SEE LIST B. W. & Co.]

℞	Conf. Aromat. (P.B., 1885),	gr. 2-1/4	[0·146 gm.]
	Pulv. pro Mist. Cretæ,	gr. 10	[0·648 gm.]
	Ammonii Bicarbonatis,	gr. 1/4	[0·016 gm.]
	Tinct. Card. Co. (P.B.),	min. 4-1/2	[0·266 c.c.]
	Tinct. Catechu (P.B.),	min. 7-1/2	[0·444 c.c.]
	Tinct. Opii (P.B.),	min. 3/4	[0·044 c.c.]
	Ol. Cinnamomi,	min. 1/16	[0·003 c.c.]

DIRECTION.—Two to four for an adult; children's doses in proportion to age. Powdered, and mixed with water; repeated as may be necessary.

Bottles of 100

TRADE MARK ‘TABLOID’ BRAND CASCARA SAGRADA, gr. 1 [0·065 gm.]; gr. 2 [0·13 gm.]; gr. 3 [0·194 gm.]; gr. 4 [0·259 gm.]; gr. 5 [0·324 gm.]; 0·15 gramme*; and 0·25 gramme*
[SEE LIST B. W. & Co.]

(Plain or sugar-coated)

DIRECTION.—Cascara Sagrada is best given in small doses (gr. 2) at first, after food, once daily, and increasing, if necessary, until gr. 6 is taken thrice daily. This quantity should be maintained until a regular action is established, when the dose should be gradually reduced and eventually discontinued. The maximum official dose is gr. 8.

Each strength in bottles of 25 *and* 100

TRADE MARK ‘TABLOID’ BRAND CASCARA AND BELLADONNA
[SEE LIST B. W. & Co.]

℞	Ext. Cascaræ Sagradæ,	gr. 2	[0·13 gm.]
	Ext. Nucis Vomicæ,	gr. 1/4	[0·016 gm.]
	Ext. Belladonnæ Viridis, P.B., 1898,	gr. 1/3	[0·022 gm.]
	Capsicini,	gr. 1/5	[0·013 gm.]

(Sugar-coated)

DIRECTION.—One, or more, as required, at bedtime.

Bottles of 25 *and* 100

* *Obtainable in the British Empire Overseas to special order only*

TRADE MARK 'TABLOID' BRAND CASCARA AND GENTIAN COMPOUND [SEE LIST B. W. & Co.]

℞ Ext. Cascaræ Sagradæ,	gr. 2	[0·13 gm.]
Ext. Nucis Vomicæ,	gr. 1/5	[0·013 gm.]
Ext. Belladonnæ Viridis, P.B., 1898,	gr. 1/10	[0·0065 gm.]
Ext. Gentianæ,	gr. 1	[0·065 gm.]
Capsicini,	gr. 1/10	[0·0065 gm.]

(Sugar-coated)

DIRECTION.—One to three, once, twice, or thrice daily, after food, or at bedtime.

Bottles of 25 and 100

TRADE MARK 'TABLOID' BRAND CASCARA COMPOUND [SEE LIST B. W. & Co.]

℞ Ext. Cascaræ Sagradæ,	gr. 1	[0·065 gm.]
Ext. Euonymi,	gr. 1/2	[0·032 gm.]
Iridini,	gr. 1/2	[0·032 gm.]
Ext. Nucis Vomicæ,	gr. 1/16	[0·004 gm.]
Ext. Hyoscyami Viridis, P.B., 1898,	gr. 1/3	[0·022 gm.]

(Plain or sugar-coated)

DIRECTION.—One to four, once, twice, or thrice daily, after food, or at bedtime.

Bottles of 25 and 100

TRADE MARK 'TABLOID' BRAND MAGNESIUM CARBONATE COMPOUND [SEE LIST B. W. & Co.]

℞ Magnesii Carbonatis,	gr. 3	[0·194 gm.]
Potassii Bicarbonatis,	gr. 3	[0·194 gm.]
Sodii Bicarbonatis,	gr. 3	[0·194 gm.]

DIRECTION.—One to four, taken with a little water, twice or thrice daily.

Bottles of 25 and 100

TRADE MARK 'TABLOID' BRAND MAGNESIUM SULPHATE, EFFERVESCENT, B.P., gr. 60 [3·89 gm.] [SEE LIST B. W. & Co.]

DIRECTION.—One to four, or more, in half a tumblerful of water, preferably an hour before breakfast. The aperient effect is increased if *hot* water be used, and if the draught be slowly sipped. Each represents thirty grains of magnesium sulphate.

Tubes of 25

TRADE MARK 'TABLOID' BRAND MAGNESIUM SULPHATE COMPOUND, EFFERVESCENT [SEE LIST B. W. & Co.]

℞ Magnesii Sulphatis,	gr. 15	[0·972 gm.]
Sodii Sulphatis,	gr. 15	[0·972 gm.]
Magnesii Carbonatis,	gr. 5	[0·324 gm.]
Liq. Zingiberis,	min. 3-1/2	[0·208 c.c.]

DIRECTION.—One to four, in half a tumblerful of hot or cold water.

Tubes of 25

TRADE MARK 'TABLOID' BRAND MISTURA ALBA [SEE LIST B. W. & Co.]

℞ Magnesii Carbonatis Ponderosi,	gr. 2-1/2	[0·162 gm.]
Magnesii Sulphatis,	gr. 15	[0·972 gm.]
Ol. Menthæ Piperitæ,	min. 1/32	[0·0019 c.c.]

DIRECTION.—One to eight, powdered, and mixed with water as required.

Bottles of 100

TRADE MARK 'PAROLEINE' BRAND

LIQUID PARAFFIN

'PAROLEINE' is a pure, neutral, colourless, tasteless and odourless liquid paraffin. Employed as an intestinal lubricant and given with excellent results in constipation. Its viscosity, determined at 100° F., conforms to the standard laid down* as essential in a liquid paraffin used as an internal lubricant.

Preparation

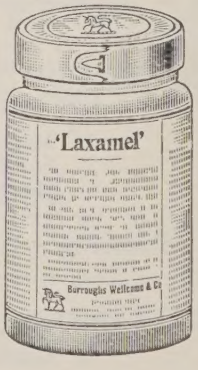
TRADE MARK 'PAROLEINE' BRAND LIQUID PARAFFIN [SEE LIST B. W. & Co.]

DIRECTION.—For internal use, one to three teaspoonfuls, or more, shortly before food.

Bottles containing 4 *fl. oz. and* 1 *lb.* (18½ *fl. oz.*)

TRADE 'LAXAMEL' MARK

A palatable jelly-like preparation of 'PAROLEINE,' easily taken by those who cannot tolerate the liquid. Contains approximately 80 per cent. of 'PAROLEINE.'



Reduced facsimile

Preparation

TRADE MARK 'LAXAMEL' [SEE LIST B. W. & Co.]

DIRECTION.—One teaspoonful to two dessert-spoonfuls, or more, as required, shortly before food.

Large glass jars

* Paraffinum Liquidum, P.B., *The Lancet*, Oct. 2, Oct. 16 *and* Nov. 13, 1915

SEDATIVES

It is of importance, in the acute illnesses of children, that physical and mental rest be secured, and for this purpose the following 'TABLOID' medicaments will be found valuable.

Preparations

TRADE MARK 'TABLOID' BRAND POTASSIUM BROMIDE, gr. 5 [0·324 gm.]; gr. 10 [0·648 gm.]; and 0·5 gramme* [SEE LIST B. W. & Co.]

DIRECTION.—Five to thirty grains (or 0·5 gramme to 2 grammes), dissolved in a large wineglassful of water, after food, or at bedtime.

Gr. 5 and gr. 10 bottles of 100; 0·5 gm. bottles of 25 and 100

TRADE MARK 'TABLOID' BRAND CHLORAL HYDRATE, gr. 5 [0·324 gm.]; and gr. 10 [0·648 gm.] [SEE LIST B. W. & Co.]

DIRECTION.—Five to twenty grains, as required, dissolved in a large wineglassful of water.

Each strength in bottles of 100

TRADE MARK 'TABLOID' BRAND DOVER POWDER, gr. $\frac{1}{4}$ [0·016 gm.]; gr. 5 [0·324 gm.]; and 0·25 gramme* [SEE LIST B. W. & Co.]

(*The five-grain strength is issued plain or sugar-coated*)

DIRECTION.—One to three of the gr. 5 strength, or one to four of the 0·25 gramme strength, for an adult. *The quarter-grain strength is intended for children.*

Gr. $\frac{1}{4}$, bottles of 100; gr. 5 and 0·25 gm., bottles of 25 and 100

TRADE MARK 'TABLOID' BRAND BELLADONNA TINCTURE, min. 1 [0·059 c.c.]; and min. 5 [0·296 c.c.] [SEE LIST B. W. & Co.]

DIRECTION.—The dose ranges from one to fifteen minims, once, twice or thrice daily, always beginning with a small dose.

Each strength in bottles of 100

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* *Obtainable in the British Empire Overseas to special order only*

An Efficient Anthelmintic

'Tabloid' brand Bismuth Subsantonate Compound provides a santonin preparation which is safe and palatable to children. Santonin exerts a vermicidal action against round- and thread-worms (*Ascaris* and *Oxyuris*). An appropriate children's dose of phenolphthalein is added in order to secure prompt evacuation.

'Tabloid' Bismuth Subsantonate Compound is designed to give effective results without exciting the nausea and gastric disturbance which often follow the administration of ordinary santonin preparations.

The 'Tabloid' preparation is made with a chocolate base. The slight coloration of the urine and transient xanthopsia which sometimes follows administration of santonin may be disregarded.

Preparation

TRADE MARK 'Tabloid' BRAND Bismuth Subsantonate Compound
[SEE LIST B. W. & Co.]

℞ Bismuthi Subsantonatis, gr. 4 [0·259 gm.]
Phenolphthaleini, gr. 1½ [0·097 gm.]

(Made with a chocolate basis)

Direction.—For children, one to two, taken at bedtime.

Bottles of 25 and 100

Thyroid Deficiency

Cretinism

The serious thyroid deficiency, which results in cretinism, yields effectively to substitution therapy. The administration of thyroid gland produces most remarkable results if given in the early stages. The stunted growth, low, broad forehead, flat nose, widely-separated eyes, stolid expression and muddy skin are all changed, active growth of the long bones begins, the facial expression becomes normal and the mental condition brighter. Cretinoid children usually bear thyroid treatment exceedingly well, and improvement is often immediate and rapid. Since, however, the ingested thyroid acts as a substitute for the deficient normal secretion, the patient must continue the use of thyroid gland in small doses for an indefinite period. The earlier treatment is commenced the better the results will be. Treatment may begin with 'Tabloid' brand Thyroid Gland, gr. 1/10, thrice daily, gradually increased up to 15 to 20 grains a day. The dose is then diminished gradually until the minimal amount maintaining a beneficial result is determined.

Thyroid treatment

Backward Development

Delayed or arrested development, physical and mental, in children, is frequently associated with a greater or less degree of hypofunction of the thyroid gland. Such cases show symptoms similar to those of sub-myxœdema, and, in addition, impairment of growth, protuberant abdomen, lumbar lordosis, and developmental abnormalities (undescended testicles, umbilical hernia, etc.) may be present. Later, there is delayed sexual development, with

immature sexual organs, stunted stature, and backward mental development. Such cases improve notably under thyroid medication.

In children, the dose depends on individual susceptibility—not on age or body-weight. It is best to administer the gland uncomplicated by any other treatment. Thyroidism, produced by dosage too large for the individual, is shown by heightened temperature and pulse-rate, headache, restlessness, fine tremors of the extended digits, nausea, prostration, glycosuria and pains in the back and limbs. When such symptoms appear, the dose should be reduced, or, preferably, treatment should be suspended for one or two weeks, and increased rest enjoined upon the patient.

'TABLOID' BRAND THYROID GLAND represents the whole substance of carefully-selected healthy glands, and can be relied on in all circumstances to produce the therapeutic effect of the fresh gland.

Preparations

TRADE MARK 'TABLOID' BRAND THYROID GLAND *(Standardised)*, gr. 1/10 [0·0065 gm.]; gr. ¼ [0·016 gm.]; gr. ½ [0·032 gm.]; gr. 1 [0·065 gm.]; gr. 1½ [0·097 gm.]; gr. 2 [0·13 gm.]; gr. 2½ [0·162 gm.]; gr. 5 [0·324 gm.]; 0·05 gramme*; 0·1 gramme*; and 0·3 gramme* [SEE LIST B. W. & Co.]

DIRECTION.—Only small doses should be given at first. A convenient method in commencing treatment is to order a one-grain 'Tabloid' product after each meal and at bedtime, increasing the dose with caution according to the effect produced. If any symptoms of thyroidism be developed, the dose should remain stationary for a few days, when it may be increased again. The dose may be increased more rapidly if the patient be instructed to lie down for ten minutes after administration. Some patients tolerate the administration better if the daily quantity required be given in one dose at bedtime. It has been suggested that beneficial results can be obtained by smaller dosage, and, for this purpose, gr. 1/10 and gr. ¼ are suitable. For children, the commencing dose should be only gr. ¼, increased with caution.

Each strength in bottles of 100

* *Obtainable in the British Empire Overseas to special order only*

THYROXINE

The active principle of the thyroid gland.

Preparations

TRADE MARK 'TABLOID' BRAND THYROXINE, 0·0001 gramme; and 0·001 gramme [SEE LIST B. W. & Co.]

DIRECTION.—One to five, gradually increased, of the 0·0001 gramme strength, or one of the 0·001 gramme strength, three times a day.

Each strength in bottles of 100

Juvenile Goitre

The early diagnosis and appropriate treatment of incipient goitre in children has become an integral part of the medical supervision of school children in many countries. To secure to physicians a suitable and satisfactory iodine preparation, Burroughs Wellcome & Co. have issued 'TABLOID' BRAND 'IODICIN' *(Chocolate Base)*. It is acceptable to the palate, and odourless. Nausea and vomiting do not occur as after so many iodine-containing preparations.

'TABLOID' BRAND 'IODICIN' *(Chocolate Base)*, which is a calcium salt of iodo-ricinoleic acid, secures the administration of 0·01 gramme (gr. 1/6 approx.) of iodine in organic combination. School physicians will find it a valuable prophylactic in juvenile goitre. Children tolerate this preparation better than any other, and welcome it because of its palatability.

Preparation

TRADE MARK 'TABLOID' BRAND 'IODICIN,' TRADE MARK 0·03 gramme [gr. ½ approx.] (*Chocolate Base*) [SEE LIST B. W. & Co.]

DIRECTION.—*Prophylaxis*—One, weekly. *Treatment*—Two to three, weekly, up to one daily, for thirty days.

Bottles of 25 *and* 100

Carbohydrates and Diet

The carbohydrates are primarily sources of energy. In this respect they are similar to the fats and, indeed, for a time may replace the fats in the diet. But the converse is not true, as fats cannot entirely replace carbohydrates. In addition to furnishing energy, the carbohydrates are necessary for many of the important metabolic processes. Fats cannot be completely oxidised unless a sufficient amount of carbohydrates is undergoing simultaneous metabolism. The incomplete combustion of fats results in the formation of the ketone bodies which are intermediate products of combustion. This form of acidosis, due to lack of carbohydrates, has an important bearing on certain disordered states in children.

Carbohydrate lack—ketosis

The metabolic processes of children are less stable than in the adult, and, for this reason, many disorders of childhood are due to biochemical derangement. One of the commonest conditions is an acidosis due to the formation of ketone bodies. Such states are characterised by recurring attacks of collapse, physical and mental, with an increased irritability and nervousness. A prominent feature is loss of muscular tone and loss of co-ordination with frequent yawning and sighing accompanied by excitable over-action of the heart and perhaps an irregular temperature. There is usually a striking vasomotor pallor. Vomiting may be a prominent symptom in many cases, and there may be the classical picture of cyclical vomiting.

Metabolic disorders

The nature of these recurring waves of disturbed metabolism—which result in such varied and puzzling symptoms—may be considered to be due to a lack of circulating carbohydrate in the blood.

The slender reserves of carbohydrate are readily exhausted by physical exertion or emotional excitement. The depletion of the blood-sugar leads to a perversion of fat metabolism and the formation of the ketone bodies. The presence of the ketone bodies in the blood leads to a diminution of the alkaline reserves of the blood.

Diminution of alkali reserve

The therapeutic measures designed to overcome such disturbances consist in a reduction of the intake of fat and a freer intake of easily absorbed carbohydrate. In addition to arranging the diet to contain more cereals, bread, rusks, oatcakes, jams, etc., it is in many cases necessary to prescribe a definite amount of sugar each day. The ideal form in which to give this sugar is maltose. Maltose is absorbed more rapidly than cane sugar and there is not the same tendency to form fermentative diarrhœa. Moreover, maltose has not the same tendency to be followed by an urticaria as cane sugar, and it does not destroy appetite between meals owing to excessive sweetness.

Increased sugar

'KEPLER' MALT EXTRACT contains maltose and dextrin and enables the physician to prescribe a daily dose of easily assimilable sugar in a pure and palatable form. 'KEPLER' MALT EXTRACT is prepared solely from the highest grade home-grown winter-malted barley. The administration of 'KEPLER' MALT EXTRACT in regular daily doses will be found a most valuable therapeutic measure in those children who manifest a tendency to attacks of carbohydrate shortage and consequent ketosis. There is often a rapid increase in weight and an improvement in muscular tone and mental outlook. The simple therapeutic measure of prescribing 'KEPLER' MALT EXTRACT in moderately large daily doses

'Kepler' Malt Extract an ideal medicament

is in many cases followed by a complete cessation of attacks of metabolic disturbance and the consequent change from a nervous irritable, ailing child to one of normal physical and mental reactions and development.

Feeding Test of the Vitamin B content of 'Kepler' Malt Extract
Effect on growth in the Rat

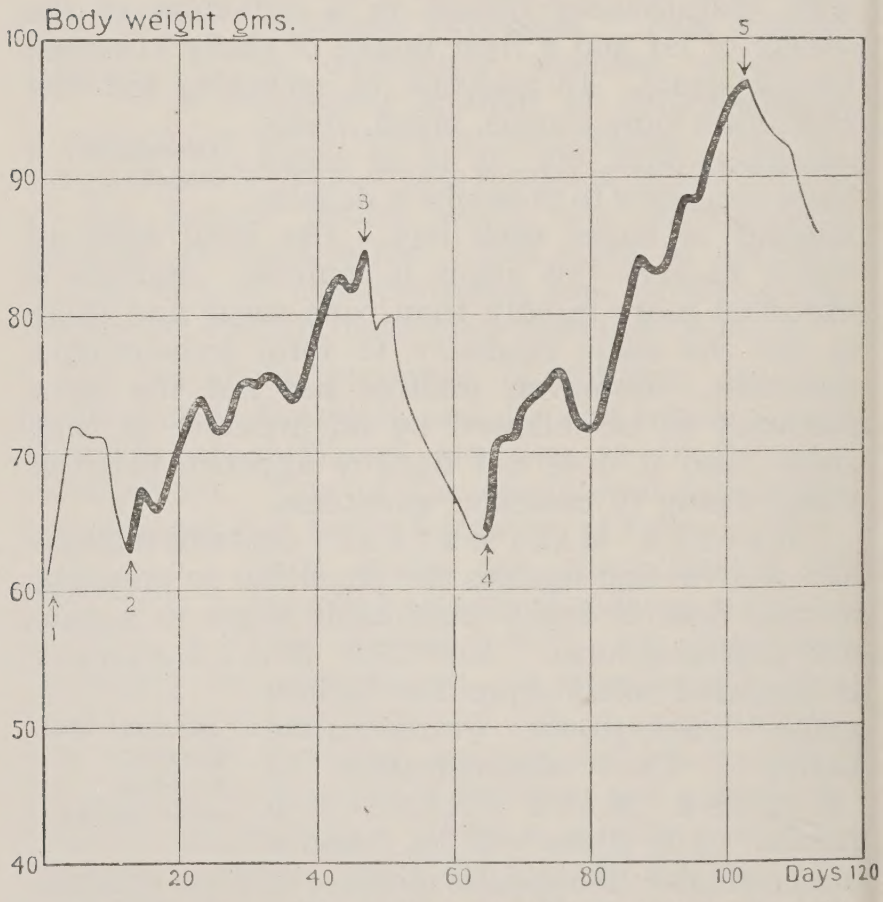

FIG. 7.—The rat was fed on a diet deficient in Vitamin B from (1) to (2). At (2) 'Kepler' Malt Extract was added to the diet. At (3) the addition of the malt extract was stopped. At (4) 'Kepler' Malt Extract was added to the diet again and at (5) stopped again. The wasting and lack of growth on a diet deficient in Vitamin B was due to atrophy of lymphoid tissue and consequent interference with nutrition. .

Thin line: growth on diet deficient in Vitamin B.

Thick line: growth on same diet with the addition of 'Kepler' Malt Extract.

Artificial Feeding

Where, for any reason, the supply of breast milk is inadequate, or breast-feeding temporarily or permanently inadvisable, bottle-feeding, either completely or partially, must be resorted to. Mixed breast and artificial feeding is usually extremely successful and is superior to entire artificial feeding. Fresh cow's milk humanised is by far the best substitute for the milk of the mother.

Protein content of milk

There is an important difference between the protein in cow's milk and that in human milk, which makes it impossible thoroughly to humanise cow's milk. In human milk, soluble protein (lactalbumen) is three times the caseinogen, whereas in cow's milk there is four times more caseinogen than soluble protein. The difference in total amount of proteins between the two milks can be overcome by diluting cow's milk with water, but the characteristic proportion of soluble and insoluble protein cannot be altered. Moreover, the curd of human milk is fine and flocculent, but the caseinogen of cow's milk is tough and firm. The fat emulsion of human milk is also finer than in cow's milk.

The dilution of cow's milk to reduce the total protein content to the amount in human milk also reduces the fat and sugar at the same time, and therefore fat and sugar must be added to the milk and water mixture to raise these constituents to the amounts present in human milk. The fat is added by means of cream, and the sugar is best

added by means of malt extract (maltose). The use of malt extract to replace the sugar has many advantages. In addition, it produces a fine curd and the diastase content of the malt extract aids in the digestion of starch in older children. The Vitamin B content of the malt extract is also of great value. The importance is obvious of employing a malt extract whose origin is known. 'KEPLER' MALT EXTRACT is a product of exceptional purity and reliability, attained by skilful manufacture and scientific control. 'KEPLER' MALT EXTRACT may be prescribed with confidence by the physician as a means of providing the sugar in milk-mixtures.

Humanised milk

The following formula may be used :—

Cream	.. ..	2	fluid ounces
Milk ..	.. ..	9	„ „
Water	.. ..	17½	„ „
'Kepler' Malt Extract	.. .. ..	1½	„ „

This formula is for thick ("separator") cream. If thin ("gravity") cream be used, take six fluid ounces and reduce the milk to five fluid ounces. Clotted cream is unsuitable.

Mix the milk, water and cream together and bring quickly just to the boil, pour into a cold vessel and allow to cool quickly. When lukewarm (body-heat), add the 'KEPLER' MALT EXTRACT and stir, cover the vessel and store in a cool place.

In order to dilute the caseinogen, which is present in greater amount than in human milk, the milk-mixture may, if necessary, be given diluted during the first eight weeks of the infant's life.

Preparation

TRADE MARK 'KEPLER' MALT EXTRACT [SEE LIST B. W. & Co.]

Bottles of two sizes

THERAPEUTIC SERA

Diphtheria Antitoxin

The most important factor in the treatment of diphtheria is the prompt administration of serum. Each day the first dose is postponed the chances of a fatal termination increase. The result of bacteriological examination of swabs should not be waited for, but, directly there is reason to suspect diphtheria, an adequate dose of diphtheria antitoxin should be administered. In moderate cases, the dose may be from 8000 to 12,000 units of 'WELLCOME' BRAND DIPHTHERIA ANTITOXIN-SERUM, and in severe cases, 20,000 to 30,000 units, given intramuscularly. In the absence of improvement within 12 to 24 hours, the dose may be repeated if desired. In severe cases, intravenous injection should be adopted. A dose of 1500 to 2000 units of 'WELLCOME' BRAND DIPHTHERIA ANTITOXIN-SERUM may be given to contacts to obtain immediate passive immunity.

Dosage

(THOMSON, 1921)

Antitoxin Units to be given in Various Cases

	If treated on 1st day	If untreated until 2nd day	until 3rd day	until 4th day or later
Mild faucial	6000	6000	8000	10,000
Moderate	10,000	12,000	14,000	16,000
Severe, severe faucial, and laryngeal.....	20,000	24,000	30,000	30,000
Very severe faucial	30,000	40,000	50,000	50,000
Laryngeal only	18,000	18,000	18,000	18,000
Nasal only, but with membrane	6000	6000	8000	10,000
Conjunctival only				

The above table may be taken as representing present knowledge and clinical experience. Larger doses, however, are now given in some institutions. Increasing attention is being drawn by various workers to the improved results which accrue from intensive intravenous doses of serum. Doses of 70,000 units are given intravenously, together with 30,000 units intramuscularly.

Scarlet Fever Antitoxin

The beneficial results accruing from the use of scarlet fever antitoxin serum are becoming increasingly apparent. The serum is efficient in cutting short temperature, malaise and rash and in shortening convalescence. When given early, the serum apparently reduces the chance of the occurrence of complications. This latter point is most important.

In all cases 'WELLCOME' BRAND CONCENTRATED SCARLET FEVER ANTITOXIN-GLOBULINS should be given at the earliest possible moment. Not less than 20 c.c. should be given to severe cases, 10 c.c. where it is thought advisable to treat mild cases, and from 20 c.c. to 50 c.c. to very severe cases. The serum is given intramuscularly in ordinary cases, and intravenously in very urgent cases. The dose may be repeated daily if the toxæmia does not abate.

The comprehensive range of vaccines and sera issued by Burroughs Wellcome & Co. is prepared at the Wellcome Physiological Research Laboratory, Beckenham, Kent (Eng.), under the supervision of a highly organised scientific staff. Special literature will be sent on request relating to Diphtheria Prophylactic, Scarlet Fever Prophylactic and products for Schick and Dick Tests.

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